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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/642,532	08/18/2000	Chris Heegard	ALA-108	7791

7590 10/12/2004

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EXAMINER

AHN, SAM K

ART UNIT PAPER NUMBER

2637

DATE MAILED: 10/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/642,532

Applicant(s)

HEEGARD ET AL

Examiner

Sam K. Ahn

Art Unit

2637

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on amendment, received on 8/2/04.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 7-26 and 28-32 is/are rejected.
- 7) ☒ Claim(s) 3-6 and 27 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 August 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, see p.8-10, filed 8/2/04, with respect to the rejection(s) of claim(s) 1,7-14,21-25 and 28-32 under 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Applicant's Admitted Prior Art (AAPA) in view of Yanagi et al., cited previously (Yanagi) and Heppe, cited previously USP 4,654,854, (Heppe).

Drawings

2. Please note that the replacement drawing sheet must be identified in the top margin as "Replacement Sheet", as explained below.

INFORMATION ON HOW TO EFFECT DRAWING CHANGES

Replacement Drawing Sheets

Drawing changes must be made by presenting replacement figures which incorporate the desired changes and which comply with 37 CFR 1.84. An explanation of the changes made must be presented either in the drawing amendments, or remarks, section of the amendment. Any replacement drawing sheet must be identified in the top margin as "Replacement Sheet" (37 CFR 1.121(d)) and include all of the figures appearing on the immediate prior version of the sheet, even though only one figure may be amended. The figure or figure number of the amended drawing(s) must not be labeled as "amended." If the changes to the drawing figure(s) are not accepted by the examiner, applicant will be notified of any required corrective action in the next Office action. No further drawing submission will be required, unless applicant is notified.

Identifying indicia, if provided, should include the title of the invention, inventor's name, and application number, or docket number (if any) if an application number has not been assigned to the application. If this information is provided, it must be placed on the front of each sheet and centered within the top margin.

Annotated Drawing Sheets

A marked-up copy of any amended drawing figure, including annotations indicating the changes made, may be submitted or required by the examiner. The annotated drawing sheets must be clearly labeled as "Annotated Marked-up Drawings" and accompany the replacement sheets.

Timing of Corrections

Applicant is required to submit acceptable corrected drawings within the time period set in the Office action. See 37 CFR 1.85(a). Failure to take corrective action within the set period will result in ABANDONMENT of the application.

If corrected drawings are required in a Notice of Allowability (PTOL-37), the new drawings MUST be filed within the THREE MONTH shortened statutory period set for reply in the "Notice of Allowability." Extensions of time may NOT be obtained under the provisions of 37 CFR 1.136 for filing the corrected drawings after the mailing of a Notice of Allowability.

Claim Objections

3. Claims 1,3-20 and 29-32 are objected to because of the following informalities:

In claim 1, line 9, delete "indicators in a window" and insert "indicators of the estimates in a window".

In claim 1, line 12, delete "the decision quality indicator is a syndrome" and insert "the one or more decision quality indicators are a syndrome calculator".

In claim 3, line 3, delete "syndromes" and insert "decision quality indicators".

In claim 3, line 6, delete "a window" and insert "the window".

In claim 7, line 4, delete "update when a transmission error is" and insert "updating step when the transmission errors are".

In claim 9, line 3, delete "determine if a" and insert "determine if said".

In claim 9, line 4, delete "error has" and insert "errors have".

In claim 9, line 5, delete "a transmission error has" and insert "said transmission errors have".

In claim 10, line 7, delete "one or more estimates" and insert "one or more of said estimate".

In claim 15, line 5, delete "an adaptive" and insert "the adaptive".

In claim 15, line 10, delete "a transmission" and insert "the at least one transmission".

In claim 16, line 3, delete "contains no transmission" and insert "does not contain said at least one transmission".

In claim 20, line 3, delete "block update rate" and insert "block update with the certain rate".

Claim 29 recites the limitation " the identification of the probable errors in the symbol " in line 10. It appears that it is referring to "probable errors in a sequence of decision quality indicators", as recited in lines 7-8, however, does not explicitly recite as such.

Claims 4-6,8,11-14,17-19 and 30-32 directly or indirectly depend on claim 1,10,15 or 29. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 15-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 15, line 4, recites "a decision quality indicator" while line 8 recites "a sequence of decision quality indicators". It appears that line 8 is reciting a plurality of elements of line 4. However, one skilled in the art may interpret wherein lines 4 and 8 are reciting two different elements.

Claims 16-20 directly or indirectly depend on claim 15.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 7-14, 21-26 and 28-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art (AAPA) in view of Yanagi et al., cited previously (Yanagi) and Heppe, cited previously USP 4,654,854, (Heppe).

Regarding claims 1, 10, 15,16, 21,26 and 29, AAPA teaches an apparatus and a method for updating an adaptive element of a communication system wherein the apparatus (see Fig.1) comprises a quantizer or estimation circuit (120), an error calculator (160) and an adaptation controller (140), which are equivalent to the preferred embodiment of this instant application as illustrated in Fig.2.

However, AAPA does not teach the adaptation controller updating the adaptive element based on the decision quality indicator dependent value. AAPA further does not teach a decision quality estimator for computing one or more decision quality indicators of estimates and generating a decision quality indicator dependent value.

Yanagi teaches a system comprising an adaptive element (12 in Fig.2) wherein the coefficients of the adaptive element are being updated by the error signal control circuit (20), which is further shown in Fig.4. Yanagi teaches the adaptation controller (27 in Fig.4) for controlling the updating of the adaptive element based on the decision quality indicator dependent value or first detected level signal, which is generated by the decision quality estimator (26 in Fig.4). Yanagi explains (note col.4, lines 15-58) that the error signal control circuit delivers the error signal to the adaptive element only when the signal value is above a threshold level or disabling/enabling the update of the adaptive element, and further explains that when the signal received is extremely small, the error signal becomes large, which is inaccurate. And describes (note col.1, lines 40-54) that during this situation the reliability is degraded. One skilled in the art would analyze that Yanagi teaches the decision quality estimator (26 in Fig.4) computing decision quality indicator of estimates (from 13). Therefore, it would have been obvious to one skilled in the art at the time of the invention to modify AAPA's teaching by including Yanagi's teaching of the decision quality estimator receiving the estimates for the purpose of increasing reliability of the error signal

generated and properly update the adaptive element during situations where the received signal is small and prevent inaccurate updating of the adaptive element, as taught by Yanagi.

However, AAPA in view of Yanagi do not explicitly teach wherein the one or more decision quality indicators or a syndrome calculator detects transmission errors in a window.

Heppe teaches (see Fig.3) forward error correction comprising one or more decision quality indicators (syndrome register) of a sequence of decision quality indicators in a window (309,311,312,206 and 207). Therefore, it would have been obvious to one skilled in the art at the time of the invention to implement modify AAPA in view of Yanagi's teaching and implementing Heppe's teaching of syndrome calculation when receiving errors from error generation calculation circuit, if not already implemented in Yanagi's teaching may only be referred differently, for the purpose of effectively calculating errors in the signal received and improve reliability in updating the adaptive element.

Regarding claims 7 and 28, AAPA in view of Yanagi and Heppe teach all subject matter claimed, as applied to claim 1 or 21. Yanagi further teaches the adaptation controller receiving an error signal and a first detected level signal (note col.5, line 51) or adaptation-disabling value. And although Yanagi does not explicitly teach a multiplexer, it would have been obvious to one skilled in the art at the time of the invention to include the multiplexer as there are two inputs with

one output going to the adaptive element where the use of the multiplexer is well-known in the art.

Regarding claim 8, AAPA in view of Yanagi and Heppe teach all subject matter claimed, as applied to claim 1. And in regards to the further limitation of the adaptation-disabling value being zero is commonly practiced in the art to assign values of high or low, or zero or having certain level. Therefore, it would have been a matter of design choice to assign the adaptation-disabling value to be a zero value as it is well-known and commonly practiced in the art.

Regarding claim 9, AAPA in view of Yanagi and Heppe teach all subject matter claimed, as applied to claim 1. Yanagi further teaches adaptation controller (27) receiving first detected level signal or decision quality indicator dependent value (from 26) to determine if the update to the adaptive element should be supplied or not depending on the comparison to the predetermined threshold level. (note col.5, lines 44-65)

Regarding claims 11-14, 22-25 and 30-32, AAPA in view of Yanagi and Heppe teach all subject matter claimed, as applied to claim 10, 21 or 29. AAPA already discloses the adaptive element (100) being updated depending on the error. Further limitation of the adaptive element being an adaptive equalizer, carrier recovery circuit, timing recovery circuit and automatic gain control circuit all

requires an adaptive element, such as taught by AAPA in view of Yanagi, and therefore, it would have been obvious to one skilled in the art at the time of the invention to implement the teaching in any system for the purpose of taking advantage of the benefits it offers to the system being applied to, as explained earlier, for the purpose of increasing reliability of the error signal generated and properly update the adaptive element during situations where the received signal is small and prevent inaccurate updating of the adaptive element, as taught by Yanagi.

Allowable Subject Matter

6. Claims 3-6 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims, and overcome the claim objections.
7. Claim 27 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
8. Claims 17-20 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims, and overcome the claim objections.

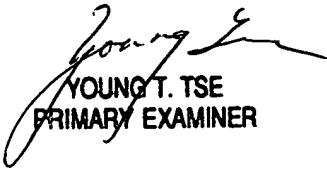
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sam Ahn whose telephone number is (571) 272-3044. The examiner can normally be reached on Monday-Friday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on (571) 272-2988. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sam K. Ahn
10/7/04


YOUNG T. TSE
PRIMARY EXAMINER